Claims

1. Method for adjusting a defined oxygen concentration by means of binary lambda regulation in order to diagnose a catalyst (5) whereby regulation of the catalyst (5) results in control cycles, whereby
- catalyst diagnosis is carried out at a predetermined defined oxygen concentration for each control cycle,
- a fuel mixture can be adjusted to rich or lean according to a lambda control factor,
- a rich or lean exhaust gas is detected,
- in the case of a lean exhaust gas, the lambda control factor is increased incrementally, and
- in the case of a rich exhaust gas the lambda control factor is decreased incrementally,
- after a change has been detected from a rich exhaust gas to a lean exhaust gas or from a lean exhaust gas to a rich exhaust gas, the lambda control value is changed by a P step,
characterized in that after a change has been detected from a rich exhaust gas to a lean exhaust gas the lambda control factor is set during a first loading time to a minimum control factor value, which represents a local minimum for the control factor value in the current control cycle, and after a change has been detected from a lean exhaust gas to a rich exhaust gas the lambda control factor is set during a second loading time to a maximum control factor value, which represents a local maximum for the control factor value in the current control cycle,
whereby the first loading time is adjusted so that the oxygen concentration achieves an oxygen input defined by the predetermined oxygen concentration in each control cycle, and whereby the second loading time is adjusted so that the oxygen concentration achieves an oxygen output defined by the predetermined oxygen concentration in each control cycle.

2. Method according to Claim 1,
characterized in that the predetermined oxygen concentration is determined by the maximum oxygen storage capacity of an ageing catalyst.

3. Method according to Claim 1 or 2,
characterized in that the minimum and maximum control factor values are defined by the difference between the lambda control factor and a mean value of the lambda control factor for the current control cycle, whereby the difference is predetermined by the oxygen absorption capacity of the catalyst.

4. Regulator (3) for adjusting a defined oxygen concentration by means of binary lambda regulation in order to diagnose a catalyst, whereby the regulator carries out catalyst diagnosis at a predetermined defined oxygen concentration for each control cycle,
whereby the regulator (3) regulates the composition of a fuel mixture with control cycles,
whereby the regulator (3) can be connected to a mixer (1) to adjust the fuel mixture to rich or lean according to a lambda control factor,
whereby a lean exhaust gas or rich exhaust gas can be detected using a sensor (4),
whereby in the event of a lean exhaust gas for the fuel mixture, the regulator increases the lambda control factor incrementally and in the event of a rich exhaust gas for the fuel mixture, it decreases the lambda control factor incrementally,
whereby the regulator (3) changes the lambda control factor by a P step, after a change has been detected from a rich exhaust gas to a lean exhaust gas or from a lean exhaust gas to a rich exhaust gas for the fuel mixture,

characterized in that the regulator (3) sets the lambda control factor to a minimum control factor during a first loading time after a change has been detected from a rich exhaust gas to a lean exhaust gas for the fuel mixture and sets the lambda control factor to a maximum control factor during a second loading time after a change has been detected from a lean exhaust gas to a rich exhaust gas for the fuel mixture,
whereby the first and second loading times are determined such that the oxygen concentration achieves the predetermined defined oxygen concentration in each control cycle.

5. Regulator (3) according to Claim 4,
characterized in that the regulator can be operated in a diagnosis mode to carry out diagnoses and in a second operating mode, in which the regulator (3) regulates the catalyst according to a normal operating mode.